



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

MAY 17 2001

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Honorable Donald G. Cole
Legislature of the Virgin Islands
Capital Building
P.O. Box 1690
St. Thomas, V.I. 00804

Honorable Adelbert M. Bryan
Legislature of the Virgin Islands
No. 1 Lagoon Street Complex
Frederiksted
St. Croix, V.I. 00841

Mr. Percival Edwards
President
St. Croix Farmers in Action, Inc.
P.O. Box 69
Kingshill
St. Croix V.I. 00851

Mr. Syed Syedali
Project Manager
Department of Planning & Natural Resources
Division of Environmental Protection
Water Gut Homes 1118
B-111/Apt 14-A
Christiansted, St. Croix, V.I. 00820-5065

Re: EPA Responses to Public Comments on the St. Croix Alumina, et. al., RCRA 7003
Administrative Order on Consent (AOC), St. Croix, V. I.

VID 090 302 084

Dear Senator Cole, Senator Bryan, Mr. Edwards, and Mr Syedali:

Thank you for your letter [or letters] regarding and/or commenting on the proposed Resource Conservation and Recovery Act (RCRA) Section 7003 AOC between the United States Environmental Protection Agency (EPA) Region 2 and past and present owners and operators of the St. Croix Alumina L.L.C. facility and the HOVENSA L.L.C. (formerly HOVIC) oil refinery. The AOC has been signed by the Acting Regional Administrator, of EPA Region 2, on May 10, 2001, after carefully considering all letters and/or written comments received during the Public Comment period regarding the proposed AOC.

As background, a Notice of a Public Comment period on the AOC and a planned public meeting to discuss it were published in Virgin Islands' newspapers on December 18 and 19, 2000. A follow-up press release was issued by EPA on January 11, 2001. The Public Comment Period which commenced on December 18, 2000, was originally scheduled to close on January 31, 2001, but in response to a request for further time to submit public comments, EPA subsequently extended the Public Comment period to February 14, 2001.

A public meeting was held on January 17, 2001 in St. Croix, and attended by approximately 40 people. At the meeting, several persons commented on the AOC, as well as expressed general concerns about other issues not pertaining to the AOC. EPA addressed each comment at the meeting. If you wish a transcript of the public meeting, please telephone Mr. Tim Gordon, of my staff, at (212) 637- 4167.

Following the public meeting, EPA received six letters [two from Mr. Edwards, and one from an anonymous "concerned citizen"] commenting on, or regarding the AOC. These comment letters were received by EPA within the prescribed period for accepting public comments, as mentioned above. EPA has carefully considered all letters and/or written comments received during the Public Comment period regarding the proposed AOC. EPA's responses to those comments are given in the enclosed "Response to Comments" document.

Please contact Mr. Gordon at (212) 637- 4167 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Raymond Basso".

Raymond Basso, Chief
RCRA Programs Branch

Enclosure

cc: Dean Plaskett, VIDPNR w/encl.
Hollis Griffin, VIDPNR w/encl.

A public meeting was held on January 17, 2001 in St. Croix, and attended by approximately 40 people. At the meeting, several persons commented on the AOC, as well as expressed general concerns about other issues not pertaining to the AOC. EPA addressed each comment at the meeting. If you wish a transcript of the public meeting, please telephone Mr. Tim Gordon, of my staff, at (212) 637- 4167.

Following the public meeting, EPA received six letters [two from Mr. Edwards, and one from an anonymous "concerned citizen"] commenting on, or regarding the AOC. These comment letters were received by EPA within the prescribed period for accepting public comments, as mentioned above. EPA has carefully considered all letters and/or written comments received during the Public Comment period regarding the proposed AOC. EPA's responses to those comments are given in the enclosed "Response to Comments" document.

Please contact Mr. Gordon at (212) 637- 4167 if you have any questions.

Sincerely,

Raymond Basso, Chief
RCRA Programs Branch

Enclosure

cc: Dean Plaskett, VIDPNR w/encl.
Hollis Griffin, VIDPNR w/encl.

bcc: William Muszynski, 2ARA w/o encl.
Kathleen Callahan, 2DRA w/o encl.
George Pavlou, 2DEPP w/o encl.
Ron Borsellino, 2DEPP w/o encl.
Carl Soderberg, 2 CEPD w/encl.
Jim Casey, 2 CEPD w/encl.
Walter Mugdan, 2ORC w/o encl.
William Sawyer, 2ORC w/o encl.
Bruce Aber, 2ORC w/encl.
Peter Brandt, 2CD w/encl.
Mary Helen Cervantes, 2CD w/o encl.
Nina Habib, 2CD w/encl.
George Meyer, 2DECA-RCB w/o encl.
Joel Golumbek, 2DECA-RCB w/o encl.
Raymond Basso, 2DEPP-RPB w/o encl.
Tim Gordon, 2DEPP-RPB w/encl.
RCRA File Room w/encl. ✓

April 26, 2001

EPA Responses to Public Comments
St. Croix Alumina, St. Croix VI
RCRA 7003 Administrative Order on Consent (AOC)

As background, a Notice of a Public Comment period on the AOC and a planned public meeting to discuss it were published in Virgin Islands' newspapers on December 18 and 19, 2000. A follow-up press release was issued by EPA on January 11, 2001. The Public Comment Period which commenced on December 18, 2000, was originally scheduled to close on January 31, 2001, but in response to a request for further time to submit public comments, EPA subsequently extended the Public Comment period to February 14, 2001.

The public meeting was held on January 17, 2001 in St. Croix, and attended by approximately 40 people. At the meeting, several persons commented on the AOC, as well as expressed general concerns about other issues not pertaining to the AOC. EPA addressed each comment at the meeting. For a copy of the transcript, please contact Timothy Gordon, at EPA, at (212) 637-4167.

Following the public meeting, EPA received six letters commenting on, or regarding the AOC. These comment letters were received by EPA within the prescribed period for accepting public comments, as mentioned above. Set forth below is a summary description of the comment letters received and EPA's response to those comments.

1. Letter dated January 24, 2001 from Senator Adelbert M. Bryan of the Legislature of the Virgin Islands, No. 1 Lagoon Street Complex, Frederiksted, St. Croix VI 00841

The letter requested that EPA hold a second Public Meeting on the proposed Administrative Order on Consent with St. Croix Alumina, et. al., and also transmitted a letter dated January 22, 2001 from Mr. Percival Edwards of St. Croix Farmers in Action, Inc., P.O. Box 69, Kingshill, VI 00851.

EPA Response: EPA by letter dated January 31, 2001, extended the comment period on the proposed Administrative Order on Consent until February 14, 2001, and offered to schedule conference calls with Senator Bryan and his staff and/or representatives of St. Croix Farmers in Action, Inc. However, EPA did not feel a second public meeting was warranted, since, as mentioned above, the public meeting held on January 17, 2001 was announced by official Public Notices in two territorial newspapers, respectively on December 18 and 19, 2001, and EPA issued a press release on January 11, 2001 further advising the public of the January 17th meeting.

2. Letter dated January 22, 2001 from Mr. Percival Edwards of St. Croix Farmers in Action, Inc., P.O. Box 69, Kingshill, VI 00851

The letter, which was addressed to Senator Adelbert M. Bryan of the Legislature of the Virgin Islands, expressed concern over whether any of the contamination from both St. Croix Alumina [referred to in the letter as ALCOA] and HOVENSA would reach farmland in the Bethlehem

area, and whether the contamination had impacted Estate Profit, Estate Strawberry and Barren Spot and Clifton Hill Areas. The letter also requested that Senator Bryan request that "another public hearing [be held] in order that more local persons may have the opportunity to attend."

EPA Response: In regards to possible contamination from the St. Croix Alumina (SCA) and HOVENSA facilities impacting the Bethlehem area, and Estate Profit, Estate Strawberry and Barren Spot and Clifton Hill Areas, see responses below to Mr. Edwards letter of February 12, 2001, which was faxed to EPA by Senator Adelbert M. Bryan's office, and included a "Statement of Public Concern", signed by approximately 80 individuals. In regards to holding a second Public Meeting, see EPA's Response above to Senator Bryan's letter of January 24, 2001.

3. Letter dated January 26, 2001 from Mr. Syed Syedali, of the Department of Planning & Natural Resources (DPNR) of the Government of the Virgin Islands

Specific Comments:

1) for Paragraph 15 of the AOC, DPNR requests clarification as to whether "...the PSPH [phase separated petroleum hydrocarbon] plume sourcing from HOVENSA has migrated across the property line and has commingled with the PSPH plume sourcing from the [St. Croix Alumina] Facility."

EPA Response: Yes that is correct, and that is why the AOC names both present and former owners and operators of both the alumina facility and the adjacent HOVIC oil refinery [now HOVENSA] as respondents. However, since 1987 HOVIC and subsequently HOVENSA have maintained a groundwater and PSPH recovery system along their western boundary. As of May of 1996 HOVIC acceptably demonstrated to EPA, by groundwater monitoring well results and groundwater modeling studies, that the recovery system maintained hydraulic control along the facility's western boundary and prevented any further migration of PSPH [also referred to as "oil"] from the HOVIC facility to the SCA property. Based on information and documentation submitted to EPA by Respondent HOVIC (now HOVENSA), EPA has determined that such hydraulic control has been maintained since then.

2) for Paragraph 16 of the AOC, DPNR requests that the work to be performed under the AOC "be broadened to include ...other contaminants such as CVOCs [(commingled ?) volatile organic constituents], heavy metal and other chemicals/materials ..used, stored and disposed at the [St. Croix Alumina] facility."

EPA response: Volatile organic constituents (VOCs) will be investigated, and if warranted, cleaned-up as part of the "Dissolved Phase Petroleum Hydrocarbon Constituent Work Plan" [DPPHC], pursuant to requirements in Section XI.B of the AOC. Since the AOC involves both present and former owners and operators of both the alumina facility and the adjacent HOVENSA [formerly HOVIC] oil

refinery as respondents, only constituents that are the results of releases from both the alumina facility and the oil refinery are addressed in the AOC. That is why heavy metal constituents and other chemicals/materials used, stored and disposed at the St. Croix Alumina facility are not addressed in this AOC. However, pursuant to Section XIV (Reservation of Rights) of the AOC, contamination from heavy metal constituents and other chemicals/materials used, stored and disposed at the St. Croix Alumina facility, if present, could be addressed under separate actions or authorities by EPA. Also, the AOC does not contain anything which would restrict independent DPNR actions as regards any contamination from heavy metal constituents and other chemicals/materials.

3) for Paragraph 17 of the AOC, DPNR expresses concern about the accuracy of petroleum hydrocarbon [age] dating.

EPA response: EPA generally agrees with DPNR's statement that petroleum hydrocarbon [age] dating "...is not an exact science." Therefore, any dates for releases cited in the AOC are estimates. These estimates were made only for the purposes of establishing responsibility, pursuant to Section 7003 of RCRA, for the PSPH releases by both present and former owners and operators of both the St. Croix Alumina facility and the adjacent HOVENSA [formerly HOVIC] oil refinery.

4) for Paragraph 20 of the AOC, DPNR expresses concern about the accuracy of the AOC statement regarding groundwater beneath the [St. Croix Alumina] Facility "as not suitable for either consumption or typical industrial uses due to the high levels of total dissolved solids".

EPA response: The statement in paragraph 20 of the AOC is based on information supplied by the present and former owners and operators of both the alumina facility and the adjacent HOVENSA [formerly HOVIC] oil refinery, as well as information in the "Atlas of Ground-Water Resources in Puerto Rico and the U.S. Virgin Islands", U. S. Geological Survey Water-Resources Investigation Report 94- 4198, dated 1996 ("the Ground-Water Atlas"). For example, in Section 4.7.2 of the Ground-Water Atlas, on page 145, it is stated "The Kingshill Marl provides most of the ground water for St. Croix, but the overall quality is poor. The water exceeds the EPA secondary drinking water standards for dissolved solids and chloride; median concentrations are 1,440 mg/L and 560 mg/L respectively." EPA believes that the AOC is accurate in indicating that the natural state of the groundwater underlying and down-gradient of the PSPH plume at the St. Croix Alumina facility, prior to any treatment processes being applied, is not usable for either consumption or typical industrial uses. DPNR has presented no information to the contrary.

5) for Paragraph 21 of the AOC, DPNR expresses concern about the accuracy of assessment of hydrocarbon impacts to the adjacent surface waters.

EPA response: EPA has no information indicating that the Caribbean Sea has been impacted by the PSPH [oil] or DPPHC contamination at St. Croix Alumina. However, full assessment of the PSPH [oil] or DPPHC impacts to the adjacent surface waters, if any, is not necessary prior to EPA signing the AOC. Rather, this will be more fully assessed as part of the PSPH and DPPHC work plans, pursuant to requirements in Section XI (Work to be Performed) of the AOC.

6) for Paragraph 26 of the AOC, DPNR indicates that it believes the PSPH and DPPHC present in the groundwater under the St. Croix Alumina facility is currently an imminent and substantial threat to public health and the environment.

EPA response: Pursuant to paragraph 33 of the AOC, EPA has determined that PSPH [oil] and/or DPPHC contamination at the St. Croix Alumina facility may present an imminent and substantial endangerment to health or the environment, and has determined that the issuance of this AOC is necessary to protect public health and the environment.

7) Other DPNR Comments: In the Conclusions section of its letter, DPNR states, "...we are concerned about non-petroleum contamination, including MTBE sourcing from HOVENSA"

EPA response: MTBE [methyl tertbutyl ether] contamination at HOVENSA is being addressed at that facility, under EPA supervision, pursuant to requirements of its 1999 Resource Conservation and Recovery Act (RCRA) Operating Permit. Specifically it is being addressed as Area of Concern (AOC) 3, as discussed in Condition III.A.4. (c).(3) of the 1999 HOVENSA RCRA Operating permit. Although EPA has no evidence of MTBE being present at the St. Croix Alumina facility; EPA will include it as a constituent to be investigated at the St. Croix Alumina facility as part of the DPPHC work plan, pursuant to requirements in Section XI.B of the AOC.

4. Letter dated February 12, 2001 from Mr. Percival Edwards of St. Croix Farmers in Action, Inc., P.O. Box 69, Kingshill, VI 00851

The letter of February 12, 2001, which was faxed to EPA by Senator Adelbert M. Bryan's office, included a "Statement of Public Concern", signed by approximately 80 individuals. The statement expresses concern over impacts from contamination at the HOVENSA [formerly Hess Oil Virgin Islands Corp (HOVIC)] and St. Croix Alumina [owned by ALCOA World Alumina LLC] facilities, both located on the south coast of St. Croix.

EPA General Response: As to the general concern expressed in the "Statement of Public Concern", EPA wishes to assure the citizens of St. Croix that it has rigorously addressed clean-up requirements for any past or present contaminant releases at the HOVENSA [formerly owned and operated by HOVIC] oil refinery, as well as at the adjacent St. Croix Alumina facility

(formerly VIALCO, and Martin Marietta Alumina). Based on all available information, EPA has determined that any past or recent PSPH [oil] releases at those two facilities have not threatened, and are not expected to threaten, the drinking water sources (such as the Barren Spot Well field) supplied by groundwater obtained from the Kingshill aquifer on St. Croix, or other off-site areas on St. Croix.

With regard to underground PSPH [oil] contamination at the HOVENSA [formerly Hess Oil Virgin Islands Corp (HOVIC) oil refinery, initial efforts to cleanup the PSPH [oil] began in 1982 and by 1987 site-wide cleanup was underway. Pursuant to the Resource Conservation and Recovery Act (RCRA) operating permit for the facility, issued by Region 2 in 1988 and reissued in 1999, HOVENSA [and previously HOVIC] has [have] been required to investigate and recover the released underground PSPH [oil] at its site. [Public Notice was given and Public Meetings were held in St. Croix prior to issuance of both the 1988 and 1999 RCRA permits.] HOVENSA is also required to implement measures (hydraulic control) to prevent migration off the HOVENSA site of the underground PSPH [oil] contamination. As of December 2000 [the most recent data], pursuant to its RCRA operating permit requirements which address contamination at its site, HOVENSA, under EPA oversight:

- * has recovered 35.59 million gallons (847,300 barrels [1 barrel = 42 gallons]) of the released underground PSPH [oil], with an estimated 6.06 million gallons (144,400 barrels) of PSPH [oil] currently remaining underground, but being hydraulically contained so as to prevent migration off the HOVENSA site, while continuing to be actively recovered;
- * operates 120 active recovery wells, whose purpose is to recover the underground PSPH [oil] and prevent its off-site migration, and 594 groundwater monitoring and PSPH [oil] observation wells, which monitor the PSPH [oil]'s areal and thickness distribution on a bi-monthly (every two months) basis, and monitor the distribution and concentration of dissolved phase hazardous constituents in the groundwater;
- * samples the groundwater in 6 monitoring wells [which are included in the above 594 monitoring and observation wells] directly along its northern "fence line" every six months to insure that if dissolved hazardous constituents were to migrate towards the Barren Spot well field, they would be detected;
- * since 1994 has been constructing and implementing a major facility-wide groundwater/phase separated [i.e., oil]/dissolved phase modeling project to guide and assess the efficiency of the clean-up, and verify that hydraulic control is being maintained so as to prevent migration of the PSPH [oil] and dissolved constituent plumes off the HOVENSA site; and
- * since 1994 has been implementing a recurring program of pressure testing, and repair or replacement of all underground process sewers and hydrocarbon pipelines, as well a recurring program of internal inspection and testing of all hydrocarbon storage tanks at the facility, in order to prevent future underground releases.

EPA's on-going oversight of HOVENSA's activities indicates that at the present time, the underground PSPH [oil] contamination, as well as any dissolved phase hazardous constituent contamination in the groundwater, are not migrating off the HOVENSA site along its northern, eastern, and western property lines, and do not threaten the drinking water supplies obtained from groundwater in the Kingshill aquifer. However, as mentioned previously, there has been some past migration onto the St. Croix Alumina property.

With regard to the St. Croix Alumina facility, as background, EPA first became aware that there was evidence of PSPH [oil] underlying the St. Croix Alumina facility (formerly VIALCO and Martin Marietta Alumina) in 1994. Initially, EPA believed the PSPH [oil] underlying the St. Croix Alumina facility was caused by releases at the adjacent oil refinery facility owned by HOVIC. Therefore, EPA required HOVIC to delineate the areal and volumetric extent of the PSPH [oil] underlying the St. Croix Alumina facility. Between 1994 and 1997, under EPA oversight, HOVIC installed 27 investigation wells on the St. Croix Alumina property in order to delineate the areal and volumetric extent of the PSPH [oil] underlying the St. Croix Alumina facility.

However, based on subsequent analyses of PSPH [oil] samples from some of those 27 investigation wells, as well as others, EPA now believes that the PSPH [oil] underlying the St. Croix Alumina facility came from fuel storage tanks and other sources located at both the St. Croix Alumina facility and the adjacent HOVIC/HOVENSA oil refinery.

Based on chromatographic analysis, EPA estimates that most of the underground PSPH [oil] underlying the St. Croix Alumina facility was originally released between 1978 and 1989/91 (approximately). However, age dating of released PSPH [oil] based on chromatographic analysis is not an exact science, and the dates of release are merely estimations made for the purposes of establishing which owner/operators are the likely parties responsible for the releases [i.e., who owned and/or operated the two facilities when the releases occurred].

Any drinking water sources (such as the Barren Spot Well field) are hydraulically upgradient of the PSPH [oil] and dissolved petroleum constituent plumes underlying the St. Croix Alumina facility; therefore, contaminants from those plumes are unlikely to impact drinking water sources. Based on bi-monthly (every two months) gauging of the 27 wells at SCA, EPA has observed no significant movement of the plume of PSPH [oil] under the St. Croix Alumina property since 1997 [when all 27 wells were installed]. Seven of the 27 wells are located on the St. Croix Alumina property north of the plume of PSPH [oil], and any northward movement of the PSPH [oil] plume, or dissolved petroleum constituent plume, towards the Barren Spot well field, or other areas north of St. Croix Alumina, would first be detected in those wells.

However, without remediation, the plume of PSPH [oil] under the St. Croix Alumina facility could, over time, migrate southwards and discharge to the Port Alucroix/Krause Lagoon Ship Channel and the surface waters of the Caribbean Sea. That is why EPA has determined that clean-up of the PSPH [oil] contamination under the St. Croix Alumina facility is necessary, and required the present and former owners and operators of both the alumina facility and the adjacent HOVENSA [formerly HOVIC] oil refinery to enter into the AOC. As discussed

previously, since clean-up of the contamination at the HOVENSA [formerly HOVIC] oil refinery is already required under that facility's 1999 RCRA Operating Permit, it is not included under the AOC.

The St. Croix Farmers in Action "Statement of Concern" also contains specific requests and/or questions, including:

1. A statement that "Some of us reside, graze our livestock....[in].. areas includ[ing] Clifton Hill, Estate Profit, Harvey Project and the Bethlehem farmlands." and "...regardless of the flow of the water, contamination that settles in the soil may easily seep through the soil northward and westward contaminating the water tables on which we rely", and a request that "tests" [wells] be conducted [installed] in "varying locations north and west of the main gut [an intermittent surface water discharge feature] referenced in the [St. Croix Alumina] Order."

EPA Response: Clifton Hill, Estate Profit, and Harvey Project are located approximately three quarters (3/4) to one and a quarter (1 & 1/4) miles north and northwest respectively of the area of the underground PSPH [oil] plume at the SCA facility. Upper Bethlehem and Bethlehem Old Work are located even further northwest and west from the area of the underground PSPH [oil] plume at the SCA facility. Since the topography north and northwest of the area of the underground PSPH [oil] plume at the SCA facility [as well as at HOVENSA] slopes south and/or southeastwards, overland flow of surface oil releases in the area of the SCA facility [as well as HOVENSA] towards the north or northwestwards from the area of the defined PSPH [oil] plume[s], or elsewhere at those facilities is not possible, except in a portion of property owned by SCA that is located north of the Melvin Evans Highway (which does not contain the PSPH [oil] plume or, as far as EPA is aware, areas associated with the alumina refining process). Therefore, although not the subject of this AOC, surface spills of oil at the SCA facility [as well as the HOVENSA facility] would not impact the soils north or northwestwards of the SCA facility, or the Bethlehem Gut area.

Likewise, since the water table potentiometric elevations [the elevations water will rise to without pumping] decrease south and southeastward from the areas of Clifton Hill, Estate Profit, and Harvey Project, as well as Upper Bethlehem and Bethlehem Old Work the direction of groundwater flow, under natural conditions, is from the Clifton Hill, Estate Profit, and the Upper Bethlehem and Bethlehem Old Work areas towards the south, i.e., towards the coast. [Refer to U.S. Geological Survey Water Resources Investigation Report 89-4085, dated 1990 (but based on July 1987 data); also see Figure 3.1.2.E-1 on page 139 of "the Ground Water Atlas" cited previously.] Therefore, it is not possible for the underground PSPH [oil] plume or the dissolved petroleum constituent plumes at the SCA facility [as well as HOVENSA], which is [are] south and southeast of those areas, to impact those areas, unless a massive reversal of the natural groundwater gradient were to occur as a result of excessive groundwater pumping in the Clifton Hill, Estate Profit and Harvey Project, as well as Upper Bethlehem and Bethlehem Old Work areas.

The AOC references no gut or other surface drainage feature, but EPA assumes the statement in the "Statement of Concern" means the petitioners want wells installed north and west of St. Croix Alumina [and HOVENSA since the statement discusses both]. Since there are already 7 wells located on the St. Croix Alumina property north of the plume of PSPH [oil] that are free of PSPH [oil] contamination, EPA feels that additional wells north of the St. Croix Alumina property are not warranted. In addition, since the land west of the St. Croix Alumina property are occupied by a closed and active landfill, and a wastewater treatment plant, additional wells west of the St. Croix Alumina property are not warranted, for the following reasons: contamination underlying the SCA facility is not expected to impact the closed and active landfill and wastewater treatment plant; even if the contamination from the SCA facility were to reach the landfills and wastewater treatment plant, potential receptors are not reasonably expected to be present; and the landfills and wastewater treatment plant themselves could be potential sources for hazardous constituent releases. Twenty seven wells located on the St. Croix Alumina property will be gauged every two months under the requirements of Section XI of the AOC; therefore, any northward or westward movement of the PSPH [oil] plume would first be detected in those wells.

2. The petitioners want to know what medical effects, if any, that any contamination may have on human and animal life. Also, in its February 12, 2001 letter addressed to Mr. Raymond Basso of EPA, the St. Croix Farmers In Action, Inc. state that HOVENSA and ALCOA should be responsible for paying for tests and/or studies of the effects on St. Croix's ecosystem, coral reefs and fishing industry.

EPA Response: EPA has no information or reason to expect that human receptors have been exposed to the PSPH [oil] or DPPHC contamination at St. Croix Alumina [or HOVENSA]. Therefore, no adverse medical impacts should have occurred due to the underground PSPH [oil] contamination at St. Croix Alumina [and HOVENSA]. However, if exposure were to occur, potential adverse human health impacts can occur. Oil and DPPHC typically contain such volatile hazardous constituents as benzene, ethyl benzene, toluene, and xylene, and various semivolatile polycyclic aromatic hydrocarbon (PAH) hazardous constituents. Benzene, ethyl benzene, toluene, xylene and various PAHs can cause adverse effects to human health. Benzene and certain PAHs are known human carcinogens. Human consumption of groundwater contaminated with PSPH [oil] or DPPHC from St. Croix Alumina [and/or HOVENSA] could increase the risk of cancer. In addition, if discharge of groundwater contaminated with PSPH [oil] or DPPHC from St. Croix Alumina [and/or HOVENSA] were to occur to the surface waters of the Port Alucroix/Krause Lagoon Ship Channel and/or the Caribbean Sea, human health impacts could occur through consumption of fish and other receptors such as crabs, shell fish (including bivalves and shrimp) and amphibians (such as frogs) which could bioaccumulate contaminants from the PSPH or DPPHC plumes. However, EPA has no information or reason to expect that human receptors have been exposed to the PSPH [oil] or DPPHC contamination, and EPA has no reason to expect human receptors to be exposed to the PSPH [oil] or DPPHC contamination in the future, especially in light of the actions required by the AOC.

3. The petitioners want to know the effects of the [underground PSPH [oil]] contamination at St. Croix Alumina on Caribbean Sea/fisherman.

EPA Response: EPA has no information indicating that the Caribbean Sea has been impacted by the PSPH [oil] or DPPHC contamination at St. Croix Alumina. Therefore, no adverse impacts should have occurred due to the [underground PSPH [oil]] contamination at St. Croix Alumina and [HOVENSA]. However, if the Caribbean Sea were to be impacted, PSPH [oil] and DPPHC can adversely affect the environment. Adverse impacts to fauna and flora from PSPH [oil] and DPPHC contaminants either in water soluble fractions, dissolved phase, or floating non-aqueous phase liquids (NAPLs), include direct lethal toxicity, direct coating, habitat disruption, tainting, physiological disruption, behavioral disruption, and bioaccumulation. Exposure to contaminants from PSPH [oil] and DPPHC can kill mangrove trees and other vegetation when absorbed through the root system or leaves. Oil can be absorbed in the dermal layer and/or feather of higher animals such as sea-turtles and birds, which can cause death or other adverse affects, as described above, to those animals. Also oil can coat the eggs of animals such as sea-turtles and birds, causing the eggs not to hatch. Groundwater discharge to the surface waters of the Caribbean Sea would constitute the principal transport pathway for the PSPH [oil] and DPPHC to impact the Caribbean Sea. Accordingly, discharges of PSPH [oil] and DPPHC from the groundwater underlying the SCA facility would have the greatest ecological impact on sea floor sediments, associated interstitial waters and any sessile infaunal and epifaunal organisms which live in or on the sea floor. The sessile infaunal and epifaunal organisms will assimilate PSPH and DPPHC. Certain of these organisms, such as bivalves, readily uptake and bioaccumulate PAHs. As these organisms are eaten up the food chain by fish and birds, the identified endangered and threatened species could be affected. However, as stated above, EPA has no information indicating that the Caribbean Sea has been impacted by PSPH [oil] or DPPHC from the St. Croix Alumina facility.

Refer to "Guadalupe Oil Field Remediation and Abandonment Project, Final Environmental Impact Report", dated March 1998, prepared by Arthur D. Little and Company for County of San Luis Obispo, California.

Refer to "The Fate and Effects of Oil in Freshwater", dated 1989, Edited by J. Green and M.W. Trett, published by Elsevier Applied Science.

4. The petitioners want some provision in the AOC for compensation, and indicate that the companies that are responsible for the contamination should set money aside in the event that harm to the people of the Virgin Islands, and particularly St. Croix, is established.

EPA Response: As stated in EPA's response to Point 2 of the St. Croix Farmer's in Action Statement of Concern, EPA has no information indicating any harm, or reason to expect any harm, to human health from PSPH [oil] and/or DPPHC contamination in the groundwater under the St. Croix Alumina (SCA) facility. Second, the remedy of "monetary compensation" for harm to human health is not within EPA's jurisdiction under

the RCRA statute, as RCRA does not contemplate or provide for compensation for harm to private parties.

Under RCRA, EPA may issue Orders assessing civil penalties for past or present violations, require compliance with provisions of RCRA, or commence civil action for injunctive relief. Additionally, EPA may require owners or operators or other responsible parties to undertake corrective action for releases of solid or hazardous waste. However, the RCRA statute neither authorizes EPA to order monetary compensation from one private party to another nor creates any private or federal cause of action for monetary damages. Thus, even assuming that there was evidence of harm to human health, there cannot be a provision in this RCRA Order requiring respondents to set up a monetary fund to provide monetary compensation to the citizens of the Virgin Islands in the future event that harm to human health is established. Of course, nothing in this Order precludes or preempts the citizens of the Virgin Islands from availing themselves of other legal recourse for monetary compensation. Although there is a citizens suit provision under RCRA, the citizen suit provision does not contemplate or provide a cause of action for monetary compensation.

5. The Statement ends by stating: "We urge you **not** to hastily approve the [St. Croix Alumina] Consent Order until interests of all parties are protected."

EPA Response: EPA's approval of the AOC has not been "hasty", but rather has occurred after due thought and consideration to the interests of the public, as evidenced by the following: a) Notice of a Public Comment period on the AOC and a planned Public Meeting to discuss it were published in Virgin Islands' newspapers on December 18 and 19, 2000; b) A follow-up press release was issued by EPA on January 11, 2001 inviting the public to attend the Public Meeting; c) The Public Meeting was held on January 17th in St. Croix, and attended by approximately 40 people; d) The Public Comment Period which commenced on December 18, 2000, was originally scheduled to close on January 31, 2001, but EPA subsequently extended the Public Comment period to February 14, 2001 to allow for further public comment; e) EPA has carefully considered the concerns expressed at the Public Meeting and in all comment letters, including this "Statement of Concern", received during the Public Comment period; f) During the Public Meeting EPA addressed the concerns expressed by the public at that meeting; For a copy of the transcript, please contact Timothy Gordon, at EPA, at (212) 637-4167; and g) EPA has prepared this Response to address all written comment letters submitted during the Public Comment period. After consideration of all public comments and concerns, EPA still believes that the AOC is necessary to protect human health and the environment.

5. Letter dated February 14, 2001 from Senator Donald G. Cole of the Legislature of the Virgin Islands

General Comment: Statement that the people should be compensated for the value of their natural resources [impacted by the releases], just as the other Respondents are compensated for their recovered petroleum.

EPA Response: EPA has no information, or reason to expect that natural resources outside the SCA Facility have been impacted by the PSPH [oil] and/or DPPHC under the SCA Facility. However, without the actions required by this AOC, adverse impacts to natural resources outside the SCA facility could occur due to the PSPH [oil] or DPPHC at the facility. The compensation provided to the other respondents is consideration in a commercial transaction for the recovered petroleum pursuant to a contractual agreement between HOVENSA and the other respondents, to which EPA is not a party. That type of compensation is wholly different from the type of compensation mentioned in this February 14, 2001 letter, which is tantamount to a claim for damages intended to compensate the people of St. Croix for alleged harm to natural resources. The remedy of "monetary compensation" for alleged harm to the environment is not within EPA's jurisdiction under RCRA.

Under RCRA, EPA may issue Orders assessing civil penalties for past or present violations, require compliance with provisions of RCRA, or commence civil action for injunctive relief. Additionally, EPA may require owners or operators or other responsible parties to undertake corrective action for releases of solid or hazardous waste. However, RCRA neither authorizes EPA to order monetary compensation from one private party to another nor creates any private or federal cause of action for compensation for damages. Thus, even assuming that there was evidence of harm to natural resources, this RCRA Order is not an appropriate mechanism for requiring respondents to provide monetary compensation to the citizens of St. Croix for the value of natural resources. Of course, nothing in this Order precludes or preempts the citizens of the Virgin Islands from availing themselves of other legal recourse for monetary compensation.

Although there is a citizens suit provision under RCRA, the citizen suit provision does not contemplate or provide a cause of action for monetary compensation.

Specific Comments:

Comment (1) states that since "...the original release occurred in 1978 and apparently was not detected until 1997, what measures have been taken to increase the probability of detecting a release?"

EPA Response: Firstly, the contamination at St. Croix Alumina was first reported to EPA in 1994, not 1997. Between 1994 and 1997, under EPA supervision, a program of installing 27 investigation wells to delineate the full extent of the PSPH contamination at St. Croix Alumina was being implemented. That delineation was

not completed until January 1997.

Secondly, as noted previously, the PSPH [oil] contamination at St. Croix Alumina was partially sourced by past releases originating at the HOVENSA (formerly HOVIC) oil refinery. Accordingly, the estimated date of 1978, which is based on chromatographic analysis of PSPH [oil] samples at the SCA facility, could partly have resulted from analysis of PSPH [oil] derived from past releases originating at the HOVENSA (formerly HOVIC) oil refinery. The PSPH [oil] releases at HOVENSA were first reported to EPA in 1982, by the then owner/operator of that facility, HOVIC, which was 15 years before the 1997 date cited in the comment.

Thirdly, as regards "measures have been taken to increase the probability of detecting a release", EPA notes that any above ground petroleum storage tanks at both St. Croix Alumina and HOVENSA must comply with the requirements of Section 311 (Oil and hazardous substance liability) of the Federal Water Pollution Control Act (also known as the "Clean Water Act"), 33 U.S.C. §1321, and the Oil Pollution Prevention requirements (i.e., Spill Prevention Control and Countermeasure Plan requirements) given at 40 C.F.R. Part 112 et seq.. Furthermore, any underground storage tanks (USTs) at St. Croix Alumina or HOVENSA must comply with the operating and release detection, as well as other requirements of 40 C.F.R. part 280. In addition, to those requirements, since 1994, HOVENSA and previously HOVIC, pursuant to corrective action requirements under its RCRA operating permit, have been required to implement a periodic testing and repair program for all petroleum storage tanks, underground pipelines, and underground process sewers at its facility. These requirements are implemented under EPA supervision, and are described in Condition III.A.4(c)1(ii) of HOVENSA's 1999 RCRA Operating Permit.

Comments (2) and (3) regard the definition of false positive and false negative decision error and their applicability to the RCRA release detection program.

EPA Response: These terms are not described or defined in the AOC, and since St. Croix Alumina does not operate a RCRA treatment, storage, or disposal unit; no RCRA release detection program, pursuant to 40 C.F.R. Part 264 or Part 265, is required at that facility.

Comments (4) and (5) regard the [St. Croix Alumina] release detection program.

EPA Response: As discussed above, St. Croix Alumina does not operate a RCRA treatment, storage, or disposal unit; therefore, no RCRA release detection program, pursuant to 40 C.F.R. Part 264 or Part 265 is required.

Comment (6) regards whether or not "... a release is still occurring at either of the facilities involved in the AOC."

EPA Response: The AOC only addresses clean-up of existing PSPH [oil] and DPPHC releases at the St. Croix Alumina facility. It does not address operating requirements for units at St. Croix Alumina. The operation of above-ground petroleum storage tanks at St. Croix Alumina are governed by Section 311 (Oil and hazardous substance liability) of the Federal Water Pollution Control Act (also known as the "Clean Water Act"), 33 U.S.C. §1321, and the Oil Pollution Prevention requirements (i.e., Spill Prevention Control and Countermeasure Plan requirements) at 40 C.F.R. Part 112 et seq. Operating requirements applicable to underground storage tanks (USTs) containing petroleum at St. Croix Alumina are given at 40 C.F.R. Part 280, and requirements applicable to St. Croix Alumina as a generator of hazardous waste are given at 40 C.F.R. Part 262.

Further, past or present releases at the HOVENSA facility are not addressed under the AOC. Those are being addressed under HOVENSA's 1999 RCRA Operating Permit, which requires comprehensive, facility-wide clean-up of past or present releases. As to release detection at HOVENSA, the 1999 RCRA Operating Permit includes extensive requirements for groundwater monitoring to detect any releases from: a) the facility's two operating and one closed hazardous waste treatment and disposal units and the facility's three non-hazardous waste waste-water treatment lagoons (surface impoundments), and b) verify that no contamination in the groundwater is migrating across the facility's north, west, or eastern boundary. In addition, a recurring program of periodic testing and repair program for all petroleum storage tanks, underground pipelines, and underground process sewers at the HOVENSA facility is required under the facility's 1999 RCRA Operating Permit.

Comment (7) queries what assurances are there that "it [will be] possible to decommission or repair all of the pipes and tanks associated with the release?"

EPA Response: The AOC does not require decommissioning or repair all of the pipes and tanks associated with the release. However, EPA has no evidence that releases are presently occurring from pipes and tanks at St. Croix Alumina. In addition, if as part of the Work to be Performed under Section XI of the AOC, EPA determines that releases are presently occurring from pipes and tanks at St. Croix Alumina, their repair can be required pursuant to Sections XII (Emergency Provisions) or XXIV (Reservation of Rights) of the AOC.

Also, as discussed previously, EPA believes that past or present releases at HOVENSA are no longer contributing to the PSPH or DPPHC plumes at St. Croix Alumina, since hydraulic control is being maintained along HOVENSA's property line with St. Croix Alumina. Secondly, as discussed above, past or present releases at the HOVENSA facility are not addressed under the AOC. Those are

being addressed under HOVENSA's 1999 RCRA Operating Permit, which requires comprehensive, facility-wide clean-up of past or present releases.

Comment (8) queries whether all of the sources of release [at the St. Croix Alumina facility] have been identified.

EPA Response: The purpose of the AOC is to clean-up the known PSPH [oil] and dissolved phase contamination underlying the St. Croix Alumina facility. EPA has identified likely past release sources at the St. Croix Alumina facility. Some of these likely past release sources have been removed prior to the AOC. Additional investigative work of the dissolved phase contamination (e.g. DPPHC) related to the PSPH plume will be conducted and such investigation may identify additional sources of release.

Comments (10) and (11): Queries who is responsible for defining on-site and off-site as regards a) contaminant migration, and b) discharge of treated groundwater, and c) whether the definitions will impact final clean-up levels.

EPA Response: On-site means within or underlying the St. Croix Alumina property. Off-site means outside of that property. As stated previously, EPA has no information, or reason to expect that contamination of PSPH [oil] and DPPHC under the SCA facility has impacted off-site areas. The surface waters adjacent to St. Croix Alumina are off-site. As to discharge of treated groundwater, EPA assumes the commentator means discharge via an TPDES outfall. That issue is addressed in the August 17, 2000 "Second Addendum to the Joint Technical Proposal" submitted to EPA. For a copy of the Second Addendum to the Joint Technical Proposal, please contact Timothy Gordon, at EPA, at (212) 637-4167.

As to the final clean-up levels, EPA's clean-up goal for the phase separated oil is to recover all of the underground oil that is technically practicable, utilizing conventional oil recovery technology. The clean-up goal for dissolved phase constituents, has not yet been fully defined, but will be defined as part of the work required under Section XI.B (DPPHC Work Plan) of the AOC. EPA's final clean-up goal for off-site contamination, if present, is to achieve a human health protectiveness level equivalent to 10^{-6} , i.e., a risk level of 1 in 1.0 million. For on-site contamination, EPA would be prepared to consider a protectiveness level equivalent to 10^{-6} to 10^{-4} ; however, in order to consider a 10^{-4} protectiveness level [a risk level of 1 in 100,000] for on-site contamination, appropriate long-term controls and/or monitoring would likely be required.

Comment (12): Queries whether the Government of the Virgin Islands will participate as a stakeholder in defining the final clean-up levels.

EPA Response: The Government of the Virgin Islands, as well as other interested members of the public, will have an opportunity to comment on final clean-up

levels, before such final clean-up levels are set by EPA. Additionally, pursuant to Section IX (Notices) of the AOC, the Department of Planning and Natural Resources (DPNR) of the Government of the Virgin Islands shall receive all work plans, reports, and correspondence generated under the AOC, which will allow the government to keep apprised of all developments regarding the AOC.

Comment (13): Implies that Paragraph 20 of the AOC indicates that the quality of the "Territories' groundwater" is not suitable for consumption or typical industrial uses, and queries whether a list of contaminants of concern (COC) will be developed.

EPA Response: As written in the AOC, Paragraph 20 only describes "The natural background water quality of the groundwater **beneath the [St. Croix Alumina] Facility...**[emphasis added here] ." Also, as discussed above in EPA's responses to comments from Mr. Syed Syedali of the DPNR, the statement in paragraph 20 of the AOC is based on information supplied by the present and former owners and operators of both the alumina facility and the adjacent HOVENSA [formerly HOVIC] oil refinery, as well as information in the "Atlas of Ground-Water Resources in Puerto Rico and the U.S. Virgin Islands", U. S. Geological Survey Water-Resources Investigation Report 94- 4198, dated 1996 ("the Ground-Water Atlas"). For example, in Section 4.7.2 of the Ground-Water Atlas, on page 145, it is stated "The Kingshill Marl provides most of the ground water for St. Croix, but the overall quality is poor. The water exceeds the EPA secondary drinking water standards for dissolved solids and chloride; median concentrations are 1,440 mg/L and 560 mg/L respectively." EPA believes that the AOC is accurate in indicating that the natural state of the groundwater underlying and down-gradient of the PSPH plume at the St. Croix Alumina facility, prior to any treatment processes being applied, is not usable for either consumption or typical industrial uses.

As to the comment regarding whether a list of contaminants of concern (COC) will be developed, a list of COCs will be developed as part of the DPPHC workplan required pursuant to Section XI.B (DPPHC Work Plan) of the AOC.

Comment (14): Queries how will final clean-up levels be determined and what type of chemical analysis will be performed, and whether a list of specific COCs will be developed and will specific levels (concentrations) be utilized..

EPA Response: See EPA response to Comments 10, 11 and 13, above.

Comment (15): Queries how human health and ecological risk will be assessed, and will risk assessment influence the final clean-up levels, and consider synergistic effects.

EPA Response: As discussed previously in our response to comments (10) and (11), the final clean-up goal for the phase separated oil, is to recover all of the underground oil that is technically practicable, utilizing conventional oil recovery technology. The final clean-up levels for dissolved phase petroleum hydrocarbon constituents, which are the only dissolved constituents subject to the AOC, will be risk-based clean-up levels, which are to be determined as part of the DPPHC workplan required pursuant to Section XI of the AOC. Synergistic effects from dissolved phase petroleum hydrocarbon constituents, if indicated to be expected, will be evaluated. Human health and ecological risk and the risk-based clean-up levels will be assessed and determined pursuant to procedures given in EPA guidance documents such as:

Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A) (Interim Final), dated 1989, EPA publication EPA/540/1-89/002.

Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals) (Interim), dated 1991, EPA publication PB92-963333.

Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (interim Final), dated 1997, EPA publication EPA/540/R-97-006.

Comment (16): Queries the reason for the disparity between the lower and upper estimate of the total amount of released PSPH [oil].

EPA Response: Estimates of the volume of the released PSPH [oil] underlying the SCA facility range between 907,500 gallons (21,607 barrels) to 2.9 million gallons (71,038 barrels) of PSPH [oil], and are based on well measurements and groundwater modeling studies. The wide range in estimated volumes is due to varying assumptions regarding the magnitude and distribution of formation porosity and permeability. The volume of groundwater degraded by the DPPHC has not yet been fully quantified, but will be done as part of the DPPHC workplan required pursuant to Section XI of the AOC.

Comment (17): Queries the total volume of groundwater extracted thus far as part of the remediation at HOVENSA [formerly HOVIC].

EPA Response: EPA does not track the cumulative volume of groundwater extracted as part of the remediation at HOVENSA [formerly HOVIC]. However, based on the most recent data available (December 2000), the volume of water currently being extracted as part of the remediation activities at HOVENSA,

averaged 325,752 gallons (7,756 barrels) per day, along with an average of 6762 gallons (161 barrels) of PSPH [oil] per day. In other words, for every one gallon of PSPH [oil] recovered, 48.2 gallons of water are extracted. Also, the remediation activities at HOVENSA are not part of this AOC.

Comment (18): Queries the total volume of groundwater expected to be extracted as part of the remediation at the SCA facility.

EPA Response: EPA's review of information/documentation submitted to it by respondents indicates that the initial volume of total fluids (PSPH [oil] and groundwater) expected to be extracted as part of the remediation at the SCA facility is 33,600 gallons per day, of which EPA estimates, initially approximately 10 percent will be PSPH [oil]. Therefore, approximately 30,240 gallons of groundwater per day (90 percent of the total fluid volume recovered) are initially expected to be extracted as part of the remediation at the SCA facility. Over time, however, the relative volume (or percentage) of groundwater expected to be extracted versus the volume of PSPH [oil] recovered will increase, as the PSPH [oil] layer decreases in thickness.

Comment (19): Queries whether the volume of groundwater expected to be extracted as part of the remediation at the SCA facility and the pumping rate of that groundwater extraction will impact the surrounding groundwater.

EPA Response: EPA has not performed analysis to evaluate the impact that groundwater extraction at the SCA facility as part of the remediation under the AOC would have on the surrounding groundwater aquifer. However, as discussed above, the volume of groundwater expected to be extracted as part of the remediation at the SCA facility is 30,240 gallons/per day, which volumetrically, considering the entire aquifer, is not a volume likely to adversely impact the upgradient portions of the aquifer. As a frame of reference in regards to volumes of groundwater extracted from the [Kingshill] aquifer, EPA notes that based on data given in the "Ground Water Atlas" [on page 134] cited previously, the volume of groundwater formerly extracted from the [Kingshill] aquifer at the nearby Barren Spot well field averaged 291,900 gallons per day in September through November, 1990, the most recent data available to EPA. Likewise, based on data given in the "Ground Water Atlas", the volume of groundwater extracted at the Fairplain well field areas (including Adventure, Golden Grove, Negro Bay, and areas north of the [Henry E. Rohlsen] airport), located approximately 1 to 2 miles west of the PSPH [oil] plume at the SCA facility, averaged 417,200 gallons per day in September through November, 1990, the most recent data available to EPA. Accordingly, EPA believes the volume of planned groundwater extraction at the SCA facility as part of the remediation under the AOC is unlikely to have an adverse impact on the upgradient portions of the [Kingshill] aquifer. However, as part of the work required under Section XI (Work to be Performed) of the AOC, EPA will request that an evaluation be performed by the respondents to determine

if the volume of groundwater extracted at SCA could adversely impact the upgradient portions of the [Kingshill] aquifer.

6. Unsigned Letter from "A concerned citizen", dated January 31, 2001

Comment 1: Alleges that it is not possible to recover the hydrocarbons subject to the AOC in a reasonable time period.

EPA Response: As discussed previously, the initial estimated volume of total fluids (PSPH [oil] and groundwater) expected to be extracted as part of the remediation at the SCA facility is 33,600 gallons per day, of which EPA estimates, initially approximately 10 percent will be PSPH [oil]. Therefore, approximately 3,360 gallons of PSPH [oil] per day are initially expected to be extracted as part of the remediation at the SCA facility. Based on that rate of recovery, up to 1.226 million gallons of PSPH [oil] could be recovered per year. While, EPA recognizes that the percentage of PSPH [oil] to be recovered will decrease with time; the expected initial recovery rate indicates that the PSPH [oil] at the SCA facility could reasonably be expected to be recovered in the 4 to 5 year time-frame currently envisioned. Also, recovery from six wells is the initial program. If that is not sufficient, under the AOC EPA could require additional recovery wells, or other measures.

Comment 2: Alleges a) that HOVENSA is pumping 1.3 million gallons of groundwater per day as part of the hydrocarbon recovery activities at its facility and is concerned about this "massive removal of precious groundwater and a depression of the upper aquifer [water table]...", and b) that "the [HOVENSA??] hydrocarbon plume now affects four Estates on the south shore of the island."

EPA Response: In regards to comment a): As discussed above in EPA's response to Senator Cole's letter, based on the most recent data available (December 2000) to EPA, the volume of water currently being extracted as part of the remediation activities at HOVENSA, averaged 325,752 gallons (7,756 barrels) per day, not 1.3 million gallons per day. As to the concerns regarding massive removal of precious groundwater and a depression of the upper aquifer [water table], EPA in 1997 requested that HOVIC [owner/operator of the oil refinery at that time], gauge [measure the elevation of the water table] all private and public wells in the area of its facility (where access was allowed by the wells' owners) and prepare a map of the regional water table in the vicinity of its facility, in order to assess if there was any reversals in the natural hydraulic gradient in the Kingshill aquifer as a result of groundwater extraction at their facility and/or at the Barren Spot well field, located immediately north of the HOVIC facility, and/or at the "Shuster well field" (a private well field) located immediately northeast of the HOVIC facility. The results of that mapping were submitted to EPA by HOVIC on January 1, 1998, and no reversals in the natural [southward] hydraulic gradient of the Kingshill aquifer, as a result of groundwater extraction at the HOVIC facility, were indicated. Also, as noted previously the remediation activities at HOVENSA are not part of this AOC.

In regards to comment b): The commentor did not identify the four [housing] Estates to which his/her letter refers as being affected by the plume. Although unclear, EPA is aware of one Estate, called Estate Figtree, which is located on the HOVENSA property, where an underground PSPH [oil] plume exists. EPA tracks the PSPH [oil] plumes at HOVENSA very closely. The most recent data, which was submitted in February 2001, has no information indicating that the PSPH [oil] plumes at HOVENSA are currently migrating off-site. Nevertheless, as mentioned above, there is an underground PSPH [oil] plume beneath the Estate Figtree area, which is inside the HOVENSA facility's perimeter fence, wholly on HOVENSA owned property, and utilized for housing for HOVENSA's employees and/or contractor employees. However, that plume is: 1) wholly within the boundaries of the HOVENSA facility, 2) being actively contained and remediated under EPA oversight, and (3) based on a human health risk evaluation study (report dated August 1998), performed by HOVENSA at EPA's request, the Estate Figtree area's underground PSPH [oil] plume is not indicated to pose any risk to the health of HOVENSA employees that reside at Estate Figtree, or to off-site residents.

Comment 3: Also concerns whether adverse impacts have/will result from excessive groundwater extraction at HOVENSA and/or St. Croix Alumina.

EPA Response: See EPA's response to comment 2 above, and also EPA's response to Comment 19 of Senator Cole's February 14, 2001 letter.

Specific Requests made by the "Concerned Citizen" include requests for:

1. An impact study [of the groundwater extraction?].

EPA Response: See EPA's response to comments 2 and 19, above.

2. Realistic projections for the duration and quantity of the [groundwater] pumping required to remove the hydrocarbon [at St. Croix Alumina].

EPA Response: The estimate of the duration of the PSPH [oil] [hydrocarbon] recovery project at St. Croix Alumina, which is required under the AOC, is 4.5 years. That estimate, which EPA considers realistic for the PSPH [oil] recovery phase of the work, was provided in the May 26, 2000 First Addendum to the "Joint Technical Proposal", which EPA required as part of the negotiations leading to the development of an acceptable AOC. The May 26, 2000 First Addendum as well as the full "Joint Technical Proposal" were available for inspection by the public (at DPNR's offices in St. Croix and EPA's office in St. Thomas) during the Public Comment Period.

3. Establishment of water recharge ponds north of St. Croix Alumina and HOVENSA.

EPA Response: As discussed previously on page 3, in EPA's Response to Specific Comment number 4 of the letter dated January 26, 2001 from Mr. Syed Syedali, of the

Department of Planning & Natural Resources (DPNR) of the Government of the Virgin Islands, and on page 15, in EPA's Response to Specific Comment number 13 of the February 14, 2001 letter from Senator Donald G. Cole of the Legislature of the Virgin Islands, in its natural state, the groundwater which will be extracted as part of the clean-up required under the AOC for the PSPH [oil] and DPPHC contamination at St. Croix Alumina is not usable for potable water supplies, due to the natural occurring elevated dissolved solids and salinity [chlorides] contents of that water. Therefore, establishment of water recharge ponds north of St. Croix Alumina is not warranted as part of the clean-up of the PSPH [oil] and DPPHC contamination required under the AOC. As discussed previously, clean-up activities at HOVENSA are not part of this AOC; however, the groundwater being extracted as part of the clean-up at HOVENSA is likewise not usable in its natural state for potable water supplies, due to the natural occurring elevated dissolved solids and salinity [chlorides] contents of that water.

4. Include water resource management procedures [in the requirements of the AOC].

EPA Response: See EPA's response to previous Comment number 3.

5. Up front project timetables must be included.

EPA Response: The project schedule given in Table 1 of the HOVIC "St. Croix Alumina Hydrocarbon Recovery Plan, which was originally submitted to EPA on February 5, 1997, and was incorporated into the May 26, 2000 First Addendum to the "Joint Technical Proposal", discussed in EPA's response to item 2 above, is considered by EPA to be an acceptable project timetable, subject to the total estimated project time [duration] and "System Startup" date being adjusted pursuant to the May 26, 2000 First Addendum, and the requirements of the AOC. The May 26, 2000 First Addendum as well as the full "Joint Technical Proposal", including the February 5, 1997 original HOVIC proposal "St. Croix Alumina Hydrocarbon Recovery Plan" and Table 1, were available for inspection by the public (at DPNR's offices in St. Croix and EPA's office in St. Thomas) during the Public Comment Period. As part of the work required under paragraph 42 (PSPH Plume Remediation) of the AOC, EPA will require the respondents to submit an updated project schedule reflecting all adjustments pursuant to the May 26, 2000 First Addendum, and the requirements of the AOC.